

ASCOCHYTA DISEASE OF CHRYSANTHEMUM
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The Ascochyta disease of chrysanthemum has been recognized for just over half a century and is reported to have a rather wide distribution. The disease was first observed in North Carolina in 1904 (1) and apparently is present wherever chrysanthemums are grown, including England, Japan and Australia (3). The wide distribution of the disease can be attributed to the following factors: 1) continuous year-round culture of chrysanthemums, 2) fungus versatility and persistence under a wide range of conditions, 3) difficulties in disease control, 4) shipment of infected cuttings. Once the disease is present, eradication of the fungus is difficult and is achieved only at considerable expense.

The Ascochyta disease of chrysanthemum is caused by *Mycosphaerella ligulicola* Baker, Dimock and Davis, the perfect stage of *Ascochyta chrysanthemi* Stev. Infection is initiated by either ascospores or pycnidiospores, produced in perithecia and pycnidia, respectively. These fungus fruiting structures are produced on infected flowers, stems and leaves which provide inoculum for adjacent and successive plantings. Current season infections, plant debris, and newly introduced infected cuttings provide the main sources of inoculum, which can survive under a wide range of environmental conditions. The fungus remains viable in relative humidities of 6 to 85% (3) and within a temperature range of -9 to 86 F (2), the upper limits probably greater in some areas. Recent pure culture isolates indicate differences in growth and fungus characteristics, implying the probable existence of fungus strains.



Fig. 1. The Ascochyta disease of chrysanthemum on leaves (A), stem (B), and flower (C).

SYMPTOMATOLOGY. The symptoms of the *Ascochyta* disease of chrysanthemum can develop on all above-ground plant parts as well as on the roots (3). The leafspots (Fig. 1-A) are brown to black, variable in size, from circular to wedge shape, usually starting at the margins and undoubtedly enhanced by injuries. Stem lesions appear as elongate, brown to black, slightly sunken areas about 1 in long, usually associated at the point of leaf attachment (Fig. 1-B). Flower symptoms are characterized by a unilateral light brown necrosis at the basal part of the petals and portion of the receptacle (Fig. 1-C). Infected cuttings in the propagation bench are initially distinguished mainly by leaf symptoms and, in some cases, infected tips. As the disease progresses, lesions are produced on the stems, causing cuttings to have a drooping, wilting appearance which usually occurs in patches on the bench.

CONTROL. Measures aimed at controlling the *Ascochyta* disease can be cited as follows, more or less in order of importance: 1) the use of disease-free propagating stock secured from the most reliable and progressive propagator, 2) rigid and systematic sanitation practices by the timely removal and destruction by burning or burying of all diseased plants and plant debris, 3) avoidance of overhead irrigation where feasible to reduce the spread of inoculum, 4) applications of the most effective fungicides recommended for the areas concerned (mixture of 1/2 lb Maneb and 3/4 lb Captan under Florida conditions) and to be made systematically as conditions warrant, 5) soil treatment by heat or chemicals to reduce the inoculum level on plant debris in the soil.

Literature Cited

1. Stevens, P. L. 1907. The chrysanthemum ray blight. *Bot. Gaz.* 44:241-258.
2. Baker, K. F., A. W. Dimock and L. H. Davis. 1949. Life history and control of *Ascochyta* ray blight of chrysanthemum. *Phytopathology* 39:789-805.
3. Baker, K. F., A. W. Dimock and L. H. Davis. 1960. Cause and prevention of the rapid spread of the *Ascochyta* disease of chrysanthemum. *Phytopathology* 61:96-101.